

# FRACTURE

**Fracture:** discontinuity of bone.

**Dislocation:** disruption of the continuity of a joint. [joint surface are no longer in continuity"]

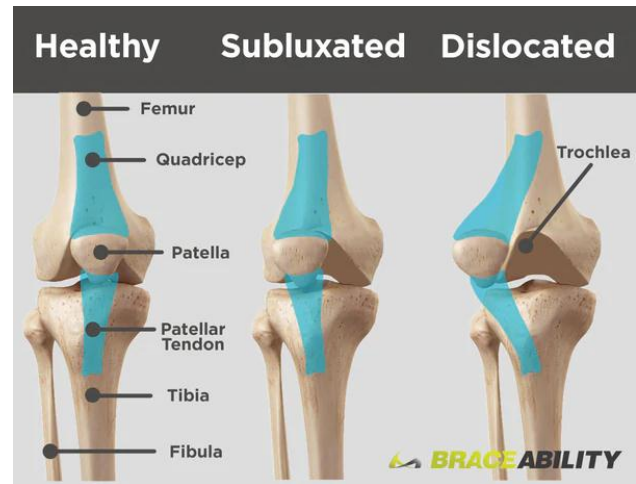
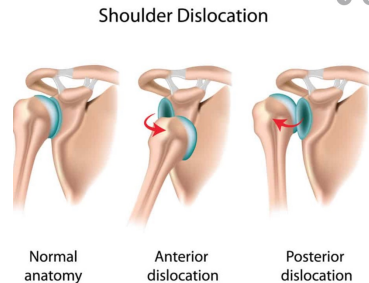
**Subluxation:** partial disruption of the continuity of a joint. Joint surface are still opposed."

**Fracture dislocation:** dislocation together with a fracture of one or more of the bones forming the joint.

## TYPES OF FRACTURES

### According to Etiology

1. Traumatic fracture
2. Pathological fracture
3. Stress fracture

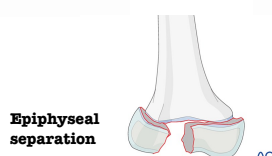
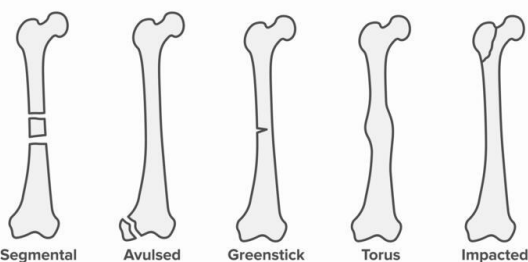
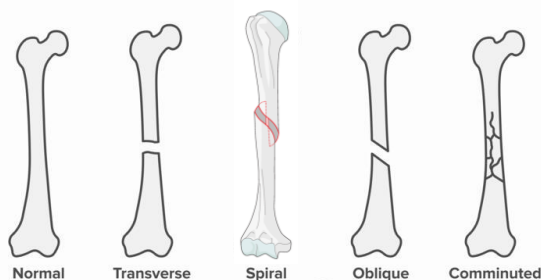


### According to relation to surrounding structures

1. Closed (simple) fracture: does not communicate with the exterior environment.
2. Open (compound) fracture: communicates with the exterior environment or body cavity e.g. skull fracture communicating with air sinus.
3. Complicated fracture: there is associated damage to nerve, blood vessels or internal structure.

### According to Shape of Fracture Line

1. Transverse (angle  $< 30^\circ$ ).
2. Oblique (angle  $> 30^\circ$ ).
3. Spiral.
4. Comminuted =  $> 2$  fragments.
5. Double level fracture or segmental fracture.
6. Epiphyseal separation



### للاطلاع

## Complications of Fractures

### A- General:

- 1- Shock.
- 2- Fat embolism.
- 3- Infections.
- 4- Crush \$.
- 5- Complications of prolonged recumbency.

### B- Local:

- 1- **Skin:**
  - a. Injury.
  - b. Infection.
  - c. Sores.
- 2- **Muscles & tendons:**
  - a. Injury.
  - b. Myositis ossificans.
- 3- **Blood vessels:**
  - a. Acute ischemia.
  - b. Compartmental \$.
  - c. Volkmann's Ischemic contracture.
- 4- **Visceral injury.**
- 5- **Nerve injury**
- 6- **Bones:**
  - a. Non-union.
  - b. Delayed union.
  - c. Malunion.
  - d. Ischemic necrosis.
  - e. Growth arrest & stimulation.
  - f. Shortening in LL fractures.
  - g. Epiphyseal injuries.
- 7- **Joints:**
  - a. Sudeck's atrophy.
  - b. Traumatic Ossification.
  - c. Ligamentous injuries & sprain.
  - d. Hemarthrosis.
  - e. Intra-articular fracture.
  - f. Osteoarthritis.
  - g. Dislocation & subluxation.
  - h. Septic arthritis.
  - i. Effusion.
  - j. Post traumatic joint stiffness.

# FRACTURE HEALING [\(video\)](#)

## Phases

- 1- Repair by **granulation tissue**. " **few weeks** ".
- 2- Union of **primary callus** (an irregular mass of vascular bone and calcified cartilage at the site of fracture). " **2-3 months** ".
- 3- Formation of **mature bone**. " **4-6 months**".

## REHABILITATION

### Physiotherapy & active movement .

#### **Aims:**

#### 1-To prevent 5

- To prevent stiffening of joints.
- To prevent wasting of bones & muscles.
- To prevent osteoporosis.
- To prevent secondary syndromes.
- To prevent edema.

#### 2- Early: to maintain the function of the uninjured parts.

#### 3- Later: restoring function of the injured parts, once fracture healing occurs.

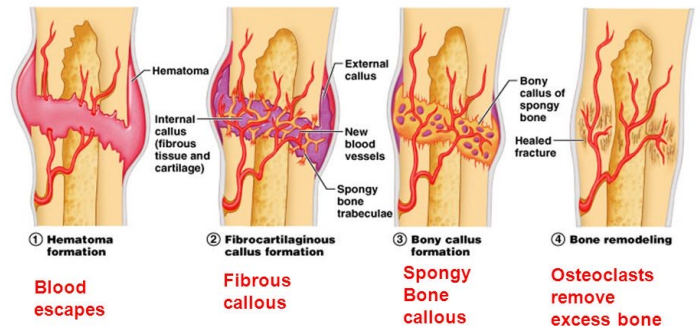


Figure 6.14